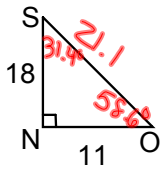
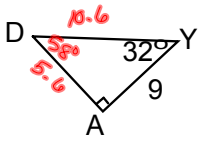
Warmup!
Solve the triangle. (that means find all missing sides and angles) Figures are not drawn to scale.

1.



2.

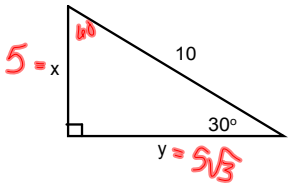


$$\tan A = \frac{opp}{adj}$$

7.6/7.7 (Continued)

The Sine and Cosine Ratios

$\sin 30 = \frac{1}{2} = \frac{5}{10}$



$\sin = \frac{opp}{hyp}$

$\cos 60 = \frac{1}{2}$

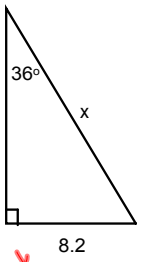
$\cos = \frac{adj}{hyp}$

$$\sin = \frac{opposite}{hypotenuse}$$

$$\cos = \frac{adjacent}{hypotenuse}$$

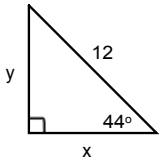
$$\tan = \frac{opposite}{adjacent}$$

SOHCAHTOA



$\sin 36 = \frac{8.2}{x}$

$x \approx 14.0$

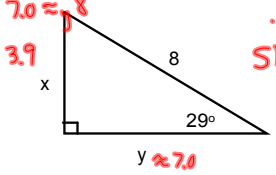


$x \approx 8.6$

$y \approx 8.3$

$\cos 29 = \frac{y}{8}$

$7.0 \approx y$



$\sin 29 = \frac{x}{8}$

$x \approx 3.9$

Find the vertex angle of an isosceles triangle with legs of length 8, and a base of length 15.

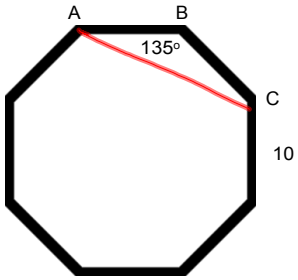
139.3°

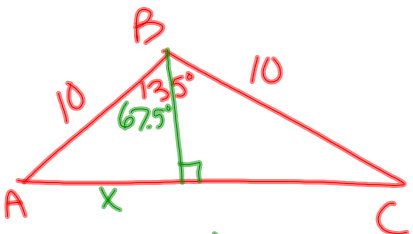
$\sin x = \frac{7.5}{8}$

$\sin^{-1}\left(\frac{7.5}{8}\right) = x$

$69.6 \approx x$

Regular octagon
Find AC.





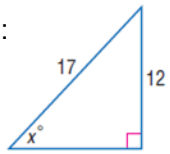
$\sin 67.5 = \frac{x}{10}$

$x \approx 9.2$

$AC \approx 18.5$

Do:

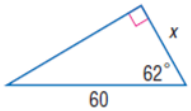
1.



$\sin x = \frac{12}{17}$

$x \approx 44.9°$

2.

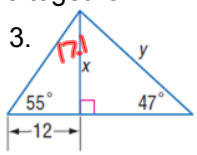


$\cos 62 = \frac{x}{60}$

$x \approx 28.2$

Do together:

3.

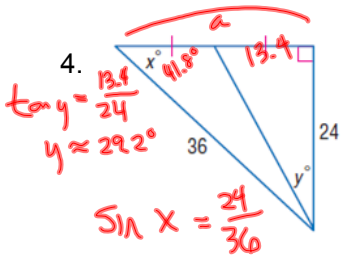


$\tan 55 = \frac{x}{12}$

$x \approx 17.1$

$\sin 47 = \frac{17.1}{y}$ $y \approx 23.4$

4.



$\tan y = \frac{13.4}{24}$

$y \approx 29.2°$

$\sin x = \frac{24}{36}$

$x \approx 41.8°$

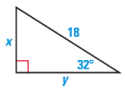
$36^2 = 24^2 + a^2$

$26.8 \approx a$

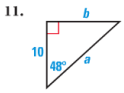
HW
p477-479
10-15, 30, 36a
p486
6-8, 14,15

USING SINE AND COSINE RATIOS Use a sine or cosine ratio to find the value of each variable. Round decimals to the nearest tenth.

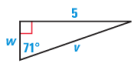
10.



11.

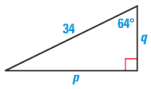


12.

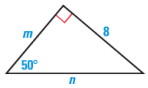


13.

14.

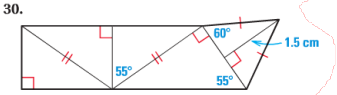


15.



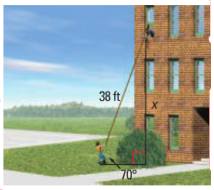
PERIMETER Find the approximate perimeter of the figure.

30.



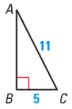
36. **MULTI-STEP PROBLEM** You want to hang a banner that is 29 feet tall from the third floor of your school. You need to know how tall the wall is, but there is a large bush in your way.

a. You throw a 38 foot rope out of the window to your friend. She extends it to the end and measures the angle of elevation to be 70°. How high is the window?

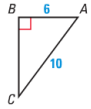


USING INVERSE SINES AND COSINES Use a calculator to approximate the measure of $\angle A$ to the nearest tenth of a degree.

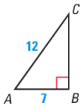
6.



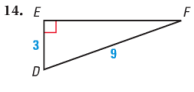
7.



8.



14.



15.